

WHAT IS CLAIMED IS:

1. A device for proximity-based communication between the device and at least a second device, the device comprising:

at least one communication unit adapted to communicate between the first device and the second device in a wireless manner;

at least one network layer that includes a communication specification for communicating information between the device and the second device through the communication unit, the network layer being adapted to detect proximity between the device and the second device and communicate information regarding detection of physical proximity between the device and the second device or a lack of detection of physical proximity between the device and the second device;

a PAN Cell Management layer that receives the physical proximity information from the network layer over time, the PAN Cell Management layer translating the physical proximity detection information received over time into time- and proximity-based events; and

an application layer including a memory in which at least one computer application is stored, the PAN Cell Management layer communicating information of occurrence of at least one of the time- and proximity-based events to the computer application so that the computer application can perform a task programmed to be performed on occurrence of one of the proximity-based events.

2. The device of Claim 1 further including a network protocol layer that includes a protocol for transmission of data between the device and the second device through the network layer.

3. The device of Claim 2 wherein network protocol layer communicates information in packets.

4. The device of Claim 1 wherein the PAN Cell Management layer aggregates recurring physical proximity detection information received from the network layer over time to translate the physical proximity detection information into one of the time- and proximity-based events, the one of the time- and proximity-based events being a representation of the proximity of the device in relation to the second device at the time of translation.

5. The device of Claim 4 wherein the time- and proximity-based events include an entered device proximity event, a still within device proximity event, a temporarily left device proximity event, a returned to device proximity event, and an exited device proximity event.

6. The device of Claim 1 wherein the task performed by the computer application includes communication with a third device.

7. The device of Claim 6 wherein the third device is in proximity with the device and the communication with the third device is wireless communication through the communication unit.

8. The device of Claim 1 wherein the computer program registers in memory an interest in time- and proximity-based events for at least one other computer program on the second device.

9. The device of Claim 1 wherein the communication unit, the network layer, the PAN Cell Management layer and the application layer reside in a single mobile device.

10. The device of Claim 1 wherein the communication unit and the network layer are stationary and are separated in location from the PAN Cell Management layer and the application layer.

11. The device of Claim 1 including a plurality of communication unit and network layer pairing, each pairing being located at a different position, each pairing being operable to detect proximity with the second device and communicate information regarding detection of physical proximity of the second device to the PAN Cell Management layer.

12. The device of Claim 11 wherein the PAN Cell Management layer takes into account historical information received from each of the pairings in translating the physical proximity detection information received over time into time- and proximity-based events.

13. A method for event-based programming that operates upon the basis of proximity over time between a

first device and at least a second device, the method comprising the steps of:

storing in the memory of the first device an application that performs a task on the basis of the occurrence of at least one of a plurality of time- and proximity-based events;

5 detecting if the first device and the second device are in physical proximity in a recurring manner over time;

10 aggregating recurring detection or lack of detection of the proximity of the first device and the second device over time to produce the time- and proximity-based events, the time- and proximity-based events being representative of the proximity of the device in relation to the second device at the time of production thereof;

15 communicating at least one of the time- and proximity-based events to the registered application.

14. The method of Claim 13 wherein the time- and proximity-based events include an entered device proximity event, a still within device proximity event, a temporarily left device proximity event, a returned to device proximity event, and an exited device proximity event.

15. The method of Claim 13 further comprising the step of registering in memory for the application stored on

the first device an interest in time- and proximity-based events for at least one other application stored on the second device.

16. A method for event-based programming that operates upon the basis of proximity over time between a plurality of stationary communication/detection devices in communication with a stationary computing device and at least one mobile device, the method comprising the steps of:

positioning each of the stationary communication/detection devices at a unique position within an area;

5 storing in the memory of the computing device an application that performs a task on the basis of the occurrence of at least one of a plurality of time- and proximity-based events;

10 detecting if the mobile device is in physical proximity with each of the stationary communication/detection devices in a recurring manner over time;

15 aggregating recurring detection or lack of detection of the proximity of each of the stationary communication/detection devices and the mobile device over time to produce the time-and proximity-based events, the time- and proximity-based events being representative of the proximity of the mobile device to the area at the time of production thereof;

communicating at least one of the time- and proximity-based events to the registered application.

17. The method of Claim 16 wherein the time- and proximity-based events include an entered area proximity event, a still within area proximity event, a temporarily left area proximity event, a returned to area proximity event, and an exited area proximity event.

18. The method of Claim 16 wherein mobile device includes:

at least one communication unit adapted to communicate with any of the communication/detection devices in a wireless manner;

at least one network layer that includes a communication specification for communicating information between the mobile device and any one of the communication/detection devices through the communication unit, the network layer being adapted to detect proximity between the mobile device and any one of the communication/detection devices and communicate information regarding detection of physical proximity between the device and any one of the communication/detection devices or a lack of detection of physical proximity between the device and any one of the communication/detection devices;

a PAN Cell Management layer that receives the physical proximity information from the network layer over time, the PAN Cell Management layer translating the physical proximity

detection information received over time into time- and proximity-based events; and

an application layer including a memory in which at least one computer application is stored, the PAN Cell Management layer communicating information of occurrence of at least one of the time- and proximity-based events to the computer application so that the computer application can perform a task programmed to be performed on occurrence of one of the proximity-based events.

19. A system comprising a plurality of devices as set forth in Claim 1.